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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,354	04/19/2004	Hiroimi Otoma	119498	1037
25944	7590	05/16/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			TRAN, CHUC	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/826,354

Applicant(s)

OTOMA, HIROMI

Examiner

Chuc D. Tran

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-22 is/are allowed.
- 6) ☒ Claim(s) 1, 7-9 and 14 is/are rejected.
- 7) ☒ Claim(s) 2-6, 10-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 07/29/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on February 21, 2006. These drawings are not accepted, because the new reference characters "150, 250, 350, 450, 550 and 750" in Fig. 1-5, 10A and 10B are not mentioned in the specification.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "active region" in claims 1-2, 8-9, 15, 17 and 19-20 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Arguments

3. Applicant's arguments filed February 21, 2006 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 7, 8-9 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Takahashi et al.

Regarding claim 1 Takahashi et al disclose a surface emitting semiconductor laser in Fig. 80 comprising:

- a semiconductor substrate (2065);
- a first semiconductor multilayer reflection film (2066) of a first conduction type on the semiconductor substrate (Fig. 80);
- a second semiconductor multilayer reflection film (2069) of a second conduction type (Fig. 80);
- an active region (Fig. 80) and a current confining layer (2071) (Page 49, Col. 2, Line 48) interposed between the first and second semiconductor multilayer reflection films (Fig. 80); and
- a low-resistance layer interposed between the current confining layer and the

Art Unit: 2821

active region (Fig. 80).

Regarding claims 7 and 14, Takahashi et al disclose that the low resistance layer comprises a laminate of semiconductor layers (Page 55, Col. 2, Line 23).

Regarding claim 8 Takahashi et al disclose a surface emitting semiconductor laser in Fig. 80 comprising:

- a semiconductor substrate (2065);
- a first semiconductor multilayer reflection film (2066) of a first conduction type on the semiconductor substrate (Fig. 80);
- a second semiconductor multilayer reflection film (2069) of a second conduction type (Fig. 80);
- an active region (Fig. 80) disposed between the first and second semiconductor multilayer reflection films (Fig. 80);
- a current confining layer (2071) in the second semiconductor multilayer reflection film (2069) (Fig. 80); and
- a low-resistance layer interposed between the current confining layer and the active region (Fig. 80).

Regarding claim 9, Takahashi et al disclose that the active region comprises an active layer (2068) and a space layer (2067) (Fig. 80); and the low resistance layer is provided between the current confining layer (Fig. 80).

Allowable Subject Matter

6. Claims 15-22 are allowed.

Reasons for Allowance

7. The following is an examiner's statement of reasons for allowance:

Prior art fails to disclose or fairly suggest: (1) a low resistance layer provided in the vicinity of the current confining layer and comprising Al_bGa_{1-b}As, the second semiconductor multilayer reflection film comprising Al_aGa_{1-a}As and Al_bGa_{1-b}As, composition ratio a, b and x meet $a > x > b$, in combination with the remaining claimed limitations as claimed in independent claim 15 (claim 16 is allowed since it is dependent on claim 15); (2) a method of forming a current confining layer by oxidizing a part of the high Al composition ratio layer from a side surface of the mesa structure to thus form a current confining layer, in combination with the remaining claimed limitations as claimed in independent claims 17 and 20 (claims 18-19 and 21-22 are allowed since they are dependent on claims 17 and 20).

8. Claims 2-6 and 10-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuc D. Tran whose telephone number is (571) 272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/826,354
Art Unit: 2821

Page 7

TC
May 14, 2006

A handwritten signature in black ink, appearing to read 'Hoang V. Nguyen', written over a horizontal line.

**HOANG V. NGUYEN
PRIMARY EXAMINER**